# Service Manu

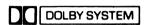
This is the Service Manual for the

except United Kingdom.

following areas.

(Silver Face)

Concise Metal Tape-Compatible Cassette Deck with FL Meters and Automatic Tape Select





#### **RS-M24 MECHANISM SERIES**

#### **Specifications**

Track system:

4-track 2-channel stereo recording and playback  $4.8 \, \text{cm/s}$ 

Tape speed: Wow and flutter:

0.048% (WRMS),  $\pm 0.14\%$  (DIN)

Frequency response: Metal tape; 20 — 18,000 Hz

30 — 17,000 Hz (DIN)

CrO<sub>2</sub> tape; 20 — 18,000 Hz

30 — 16,000 Hz (DIN) Normal tape; 20 — 17,000 Hz

Signal-to-noise ratio: Dolby NR in; 67 dB (above 5 kHz)

30 — 15,000 Hz (DIN)

Dolby NR out; 57 dB (signal level = max. record-

ing level, CrO<sub>2</sub> type tape)

Fast forward and

rewind time: Approx. 90 seconds with C-60 cassette tape

Inputs:

MIC; sensitivity  $0.25\,\mathrm{mV}$ , input impedance  $10\,\mathrm{k}\Omega$ 

LINE; sensitivity 60 mV, input impedance 43 kΩ

Dimensions: applicable microphone impedance  $400\Omega$ — $10 k\Omega$ 

Weight:

Outputs:

Motor:

Heads:

Bias frequency:

2-head system: 1-MX head for record/playback 1-ferrite double-gap head for erasure

Electrical DC governor motor

impedance  $8\Omega$ 

Power requirements: AC; 110/220 V, 50-60 Hz, AC 240 V only

LINE; output level 400 mV, output impedance

HEADPHONES; output level 80 mV, load

 $1.5 k\Omega$  or less load impedance  $22 k\Omega$  over

for United Kingdom.

Power consumption: 15W

 $29.7 \, \text{cm}(W) \times 12.3 \, \text{cm}(H) \times 23.0 \, \text{cm}(D)$ 

80 kHz

4.0 kg

Specifications are subject to change without notice.

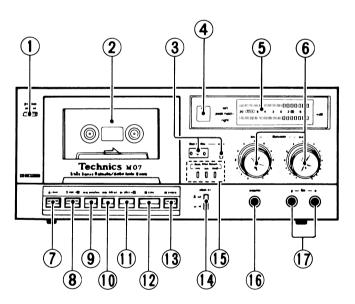
\* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

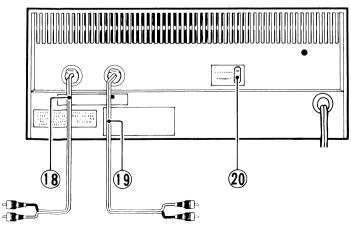
## Technics

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## **LOCATION OF CONTROLS AND COMPONENTS**

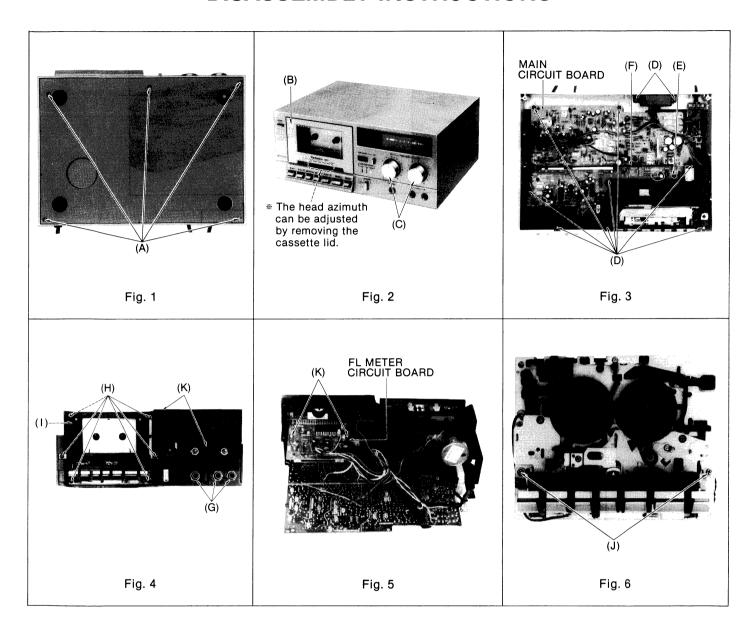




- 1) Power switch [power (push on)]
- 2 Cassette holder
- (3) Tape counter and Reset button (tape counter—reset)
- (4) Recording indicator (rec)
- 5 Fluorescent level meters
- 6 Input level controls [input level (left-right)]
- ⑦ Eject button (▲ eject)
- Record button (○ rec—□)

- ⊕ Play button (► play—⑤)
- (2) Stop button ( stop)
- (13) Pause button ( | | pause)
- (4) Dolby noise-reduction switch [Dolby NR ( Lout \_ in)]
- (5) Auto tape selector indicators [Auto Tape Select (nor CrO<sub>2</sub> Metal)]
- (6) Headphones jack (phones)
- (7) Microphone jacks [mic (L·R)]
- (8) Line output cord (LINE OUT)
- (19) Line input cord (LINE IN)
- 20 Voltage selector (VOLTAGE SELECTOR)
  - \* For all European areas except United Kingdom.

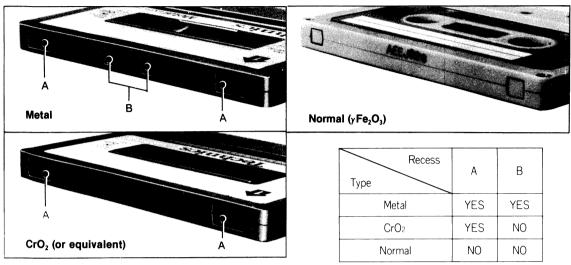
## **DISASSEMBLY INSTRUCTIONS**

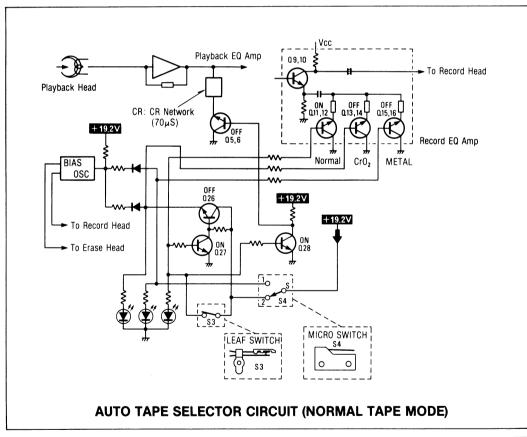


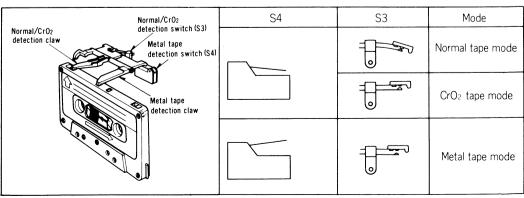
Ref. No.	Procedure	To remove ——	Remove ——	Shown in fig. ——
1	1	Bottom cover	• 5 screws ·····(A)	1
2	1→2	Main circuit board and mechanism unit	Cassette lid(B)     2 control knobs(C)     10 screws(D)	2 2 3
3	$1 \rightarrow 2 \rightarrow 3$	Main circuit board	• Screw(E) • Record wire(F) • 3 nuts(G)	3 3 4
4	$1 \rightarrow 2 \rightarrow 4$	Mechanism unit	• 6 screws(H)	4
5	$1 \rightarrow 2 \rightarrow 4 \rightarrow 5$	Operation button unit	• Cassette holder(I) • 2 screws(J)	4 6
6	$1 \rightarrow 2 \rightarrow 6$	FL meter circuit board	• 4 screws ·····(K)	4, 5

## **AUTO TAPE SELECTOR FUNCTION**

RS-M07 is equipped with an auto-tape selector system that detects these identification recesses and automatically selects the correct bias and equalization for normal, CrO<sub>2</sub> and metal tape varieties. Thus, the novice user can obtain the correct tape selector setting automatically to ensure proper recording and playback results.







## **MEASUREMENT AND ADJUSTMENT METHODS**

#### NOTE:

Tape speed can be adjusted through the small hole on the back-side of main case by the  $\bigcirc$  screw driver (non metal type) as shown in the diagram below.

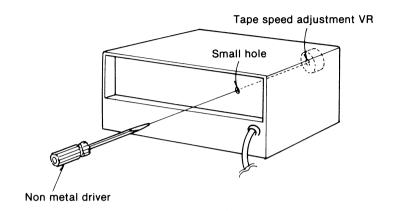


Fig. 1

## **ADJUSTMENT PARTS LOCATION**

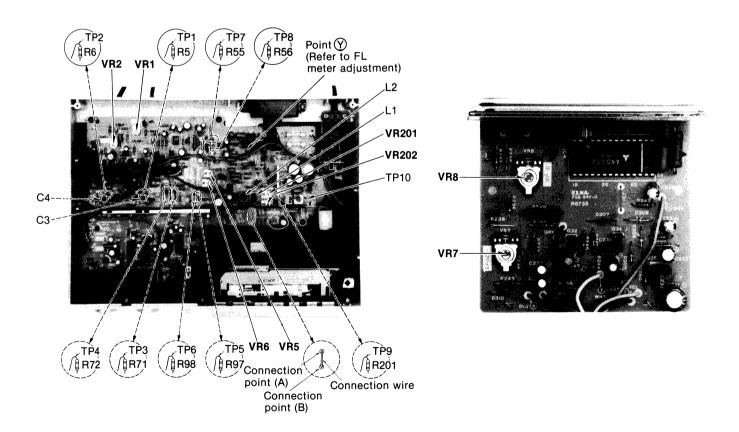


Fig. 2

NOTES: Keep good condition, set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature:  $20 \pm 5$  °C ( $68 \pm 9$  °F)
- Dolby NR switch: OUT
- Input level controls: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
Head position adjustment Condition:     Playback and pause mode	(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.)  1 Press the playback button and pause button.  2 Measure the space between the pressure roller and the capstan.  Standard value: 0.5±0.3 mm  Space (adjustable)  3 If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment  Fig. 3
Head azimuth adjustment  Condition:     Playback mode     Normal tape mode  Equipment:     VTVM	L-ch/R-ch output balance adjustment  1. Make connections as shown in fig. 4.  2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 5 for maximum output L-ch and R-ch levels. When the output levels of L-ch and R-ch are not at maximum at the same time, readjust as follows. 3. Turn the screw shown in fig. 5 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate the angle B between angles A and C, i.e., a point where L-ch and R-ch output levels come together at maximum. (Refer to figs. 5 and 6.)  L-ch peak level R-ch peak level OUTPUT LEVEL
	L-ch/R-ch phase adjustment  4. Make connections as shown in fig. 7.  5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 5 so that pointers of the two VTVMs swing to maximum and a waveform as illustrated in fig. 8 is obtained on the oscilloscope.  Record/playback Lch-Dlayback Lch-Dlayback Link mode OUT VTVM Vertical Horizontal Fig. 8  Fig. 7
<ul> <li>Tape speed</li> <li>Condition:</li> <li>Playback mode</li> <li>Normal tape mode</li> </ul> Followers:	Tape speed accuracy  1. Test equipment connection is shown in fig. 9.  2. Playback test tape (QZZCWAT 3,000 Hz), and supply playback signal to frequency counter.  3. Take measurement at middle section of tape.  Record/playback head  LINE OUT  Playback mode Digital electronic counter  Fig. 9

#### Equipment:

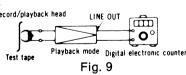
- \* Digital electronic counter or frequency counter
- \* Test tape · · · QZZCWAT
- Take measurement at middle section of tape.
- 4. Measure this frequency.
- 5. On the basis of 3,000 Hz, determine value by following

Tape speed accuracy = 
$$\frac{f - 3,000}{3,000} \times 100$$
 (%) where, f = measured value

Standard value:  $\pm 1.5\%$ 

#### Adjustment method

- 1. Playback the test tape (middle).
- 2. Adjust so that frequency becomes 3,000 Hz.
- 3. Tape speed adjustment VR shown in fig. 1.



ITEM	MEASUREMENT & ADJUSTMENT					
	Tape speed fluctuation  Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:  Tape speed fluctuation = $\frac{f_1 - f_2}{3,000} \times 100$ (%) $f_1$ = maximum value, $f_2$ = minimum value  Standard value: Less than 1%  Note:  Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.					
Playback frequency response  Condition: Playback mode Normal tape mode  Equipment VTVM Oscilloscope Test tape QZZCFM	1. Test equipment connection is shown in fig. 4.  2. Place UNIT into Normal tape mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 315 Hz. 12.5 kHz. 8 kHz. 4 kHz. 1 kHz. 250 Hz. 125 Hz and 63 Hz. and compare each output level with the standard frequency 315 Hz. at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart (shown in fig. 10).  7. Playback frequency response chart   6.6dB					
	Adjustment  1. If the measurement value increases in the high frequency range, as shown in fig. 11, remove capacitor C3 (L-CH) and C4 (R-CH) (Refer to fig. 2).  Compensation value  6kHz 8kHz 10kHz 12.5kHz  -0.2dB -0.4dB -0.8dB -1.2dB  2. If the measurement value decreases in the high frequency range, as shown in fig. 12, insert and solder capacitors  C3 (L-CH) and C4 (R-CH).  Fig. 11					
	Compensation value  6 kHz 8 kHz 10 kHz 12.5 kHz + 0.2 dB + 0.4 dB + 0.8 dB + 1.2 dB  Capacitors  Ref. No. Part No.  1 kHz 4 kHz 6 kHz / 10 kHz 12.5 kHz 8 kHz  1 kHz 6 kHz / 10 kHz 12.5 kHz 8 kHz					
Playback gain Condition: Playback mode Normal tape mode Equipment:	1. Test equipment connection is shown in fig. 4. 2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT. 3. Make measurement for both channels.  Standard value: 0.4V±2dB [around 0.42V: at test points TP5 (L-CH) and TP6 (R-CH)]					
VTVM	Adjustment  1. If measured value is not within standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 2 on page 4).  2. After adjustment, check "Playback frequency response" again.					

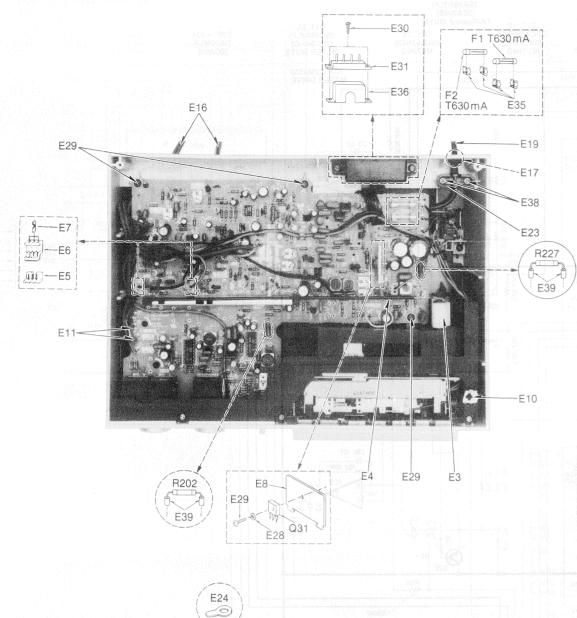
#### **MEASUREMENT & ADJUSTMENT ITEM** TP7 (L-CH) TP8 (R-CH) Bias leakage 1. Test equipment connection is shown in fig. 13. L1 (L-CH) Place UNIT into record mode. Condition: R/P head 3. Adjust trap coil L1 (L-CH), L2 (R-CH) so that measured \* Record mode value on VTVM becomes minimum. \* Metal tape mode 4. Take adjustment for both channels. Record mode Equipment: \* VTVM \* Oscilloscope VTVM Oscilloscope Fig. 13 @ Erase current 1. Test equipment connection is shown in fig. 14. Place UNIT into Metal tape mode. Erase head Condition Press the record and pause buttons. **3**C \* Record mode Read voltage on VTVM and calculate erase current by \* Metal tape mode following formula: R201 Erase current (A) = $\frac{\text{Voltage across both ends of R}}{201}$ Equipment TP10 VTVM Oscilloscope $1(\Omega)$ \* VTVM \* Oscilloscope Fig. 14 Standard value: 155 ± 15 mA (Metal position) 5. If measured value is not within standard, adjust as follows. Adjustment 1. Open the point (A) and short the point (B) on the main circuit board in the adjustment parts location (See fig. 2). 2. Make measurement for erase current. 3. Make sure that the measured value is within the erase current of 140 mA to 170 mA. If it is beyond the value, carry out the following adjustments: • If the erase current is less than 140 mA, short the point (A) and (B). • If the erase current is more than 170 mA, open the points (A) and (B). Overall frequency Note 1: Overall frequency response chart (Normal) response Before measuring and adjusting, make sure of +6dB-- 4.5 dE - 4 dB - 2 dB the playback frequency response (For the +4dB Condition method of measurement, please refer to the \* Record/playback mode + 2 dR 0 dB playback frequency response). 0 dB \* Normal tape mode 1.5 dB - 2 dB \* CrO<sub>2</sub> tape mode Note 2: — 3 dB — 4 dB \* Metal tape mode - 4 dB Test tape QZZCRA to be supplied after July - 6 dB 500 Hz 1 kHz 2 kHz 3 kHz Former New 10 kHz 12 kHz 100 Hz 200 Hz 1980 has higher recording sensitivity in the \* Input level controls ··· MAX middle and high frequency range. -Refer to note 2 Fig. 15 Equipment: This chart indicates the standard values for the new type of QZZCRA when in use. \* VTVM \* AF oscillator \* ATT \* Oscilloscope \* Resistor (600 $\Omega$ ) This chart indicates the standard values for the former type of QZZCRA when in use. \* Test tape (reference blank tape) The new type of QZZCRA is marked as shown in fig. 16. ... QZZCRA for Normal ... QZZCRX for CrO2 Former type New type ··· QZZCRZ for Metal Marking QZZCRA ÓZZCRA: Fig. 16

RS-M07 RS-M07

ITEM	MEASUREMENT &	ADJUSTMENT
	<ol> <li>Place the UNIT into Normal tape mode and load the test tape (QZZCRA).</li> <li>Input a 1 kHz, —24 dB signal through LINE IN. Place the set in record mode.</li> <li>Fine adjust the attenuator to obtain 0.4 V LINE OUT output.         <ul> <li>Make sure that the input signal level is —24 ± 4 dB with 0.4 V output voltage.</li> </ul> </li> <li>Adjust the attenuator to reduce the input signal level is —24 ± 4 dB with 0.4 V output voltage.</li> <li>Adjust the AF oscillator to generate 50 Hz, 100 Hz 12 kHz signals, and record these signals on the test of the signals recorded in step 6, and check shown in the overall frequency response chart for (If the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications, present the signal of the curve is within the charted specifications.</li> </ol>	Iayback VR102 (R-CH)  VR102 (R-CH)  VR102 (R-CH)  VRV 102 (R-CH)  VTVM oscilloscope  For overall frequency response measurement.  Fig. 17  rel by 20 dB.  r. 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and set tape.  K if the frequency response curve is within the limits normal tapes (fig. 15).  receed to steps 8, 9 and 10.)
	If the curve is not within the charted specifications  Adjustment (A):  When the curve exceeds the overall frequency response chart specifications (fig. 15) as shown in fig. 18.	Adjustment (B): When the curve falls below the overall frequency response chart specifications (fig. 15) as shown in fig. 19.
	+6dB +5dB +4.5dB +4.5dB +2dB 0dB_1.5dB -2dB -3dB -3dB -4dB -4dB -6dB 1kHz 2kHz 3kHz 6kHz / 10kHz 12kHz	+6dB +5dB +4.5dB +4.5dB +4.6B 0.2B 1.5dB -2dB 1.5dB -3dB -3dB -3dB -4dB -6dB 8kHz 10kHz 12kHz
	Fig. 18  1) Increase bias current by turning VR201 (L-CH) and VR202 (R-CH). (See fig. 2 on page 4.)  2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 15.)  3) If the curve still exceeds the specifications (fig. 15), increase bias current further and repeat steps 6 and 7.	Fig. 19  1) Reduce bias current by turning VR201 (L-CH) and VR202 (R-CH).  2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 15.)  3) If the curve still falls below the charted specifications (fig. 15) reduce bias current further and repeat steps 6 and 7.
	8. Place the UNIT into CrO <sub>2</sub> tape mode change test tape to QZZCRX, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 14 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response	Fig. 20  z, 8kHz, 10kHz, 12kHz and 14kHz signals. Then, the limits shown in the overall frequency response chart (CrO2, Metal)  +6dB +4.5dB +2.2dB -6dB 8kHz/12kHz/14kHz 10kHz 10kHz 10kHz 10kHz 10kHz requency response

ITEM	MEASUREMENT & ADJUSTMENT
	10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.  • Read voltage on VTVM and calculate bias current by following formula:  Bias current (A) = $\frac{\text{Value read on VTVM (V)}}{10 \ (\Omega)}$ around 400 $\mu$ A (Normal position) around 600 $\mu$ A (CrO <sub>2</sub> position) around 1000 $\mu$ A (Metal position)
● Overall gain  Condition:  • Record/playback mode  • Input level controls ··· MAX  • Standard input level;  MIC ······· − 72 ± 3.5 dB  LINE IN ··· − 24 ± 3.5 dB  • Normal tape mode  Equipment:  • VTVM • AF oscillator  • ATT • Oscilloscope  • Resistor (600 \( \Omega) \)  • Test tape  (reference blank tape)  ··· QZZCRA for Normal	<ol> <li>Test equipment connection is shown in fig. 21.</li> <li>Place the UNIT into Normal tape mode and load the test tape (QZZCRA).</li> <li>Place UNIT into record mode.</li> <li>Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT to LINE IN.</li> <li>Adjust ATT until monitor level at LINE OUT becomes 0.4 V.</li> <li>Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.4 V.</li> <li>If measured value is not 0.4 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 2 on page 4).</li> <li>Record/playback head</li> </ol>
Condition:  * Record mode  * Input level controls ····· MAX  * Output level control ···· MAX  * Tape selector  ···· Normal position  Equipment:  * VTVM * AF oscillator  * ATT * Oscilloscope  * Resistor (600 Ω)	1. Test equipment connection is shown in fig. 21. 2. As shown in fig. 22, connecting the base of Q33 and ground stops the oscillation of the astable multivibrator comprising Q33 and Q34. 3. Supply 1 kHz signal (-24 dB) to the LINE IN jack, then press the record button. 4. Adjust the ATT so that the output level at LINE OUT jack becomes 0.4 V (The input level at this condition is termed the standard input level). 5. Adjustment at "-20 dB": A. Adjust the ATT so that input level is -20 dB below standard recording level. B. Adjust VR7 so that the -20 dB segment lights up in the -20 ±0.8 dB range (L-CH ONLY) (See fig. 23). 6. Adjustment at "0 dB": A. Adjust the ATT so that the output level at LINE OUT jack becomes 0.4 V. (The input level at this condition is termed the standard input level.) B. Adjust VR8 so that the +1 dB segment lights up in the 0 ±0.2 dB range of the standard input level (See fig. 24). 7. Repeat twice between steps 5 and 6 above. 8. Adjust ATT and check that all segments light up when an input signal level is increased to 10 dB higher than the standard input level (See fig. 25).
© Dolby NR circuit  Condition:  • Record mode  • Dolby NR switch····IN/OUT  • Input level controls····MAX  Equipment:  • VTVM • AF oscillator  • ATT • Oscilloscope  • Resistor (600 Ω)	<ol> <li>Test equipment connection is shown in fig. 26.</li> <li>Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain —34.5 dB at TP5 (L-CH), TP6 (R-CH) (frequency 5 kHz).</li> <li>Confirm that the value at IN position is 8 (±2.5) dB greater than the value at OUT position of Dolby NR switch.</li> </ol>

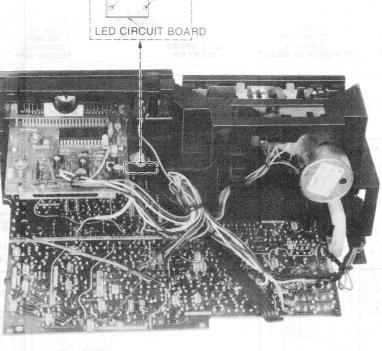
## **ELECTRICAL PARTS LOCATION**



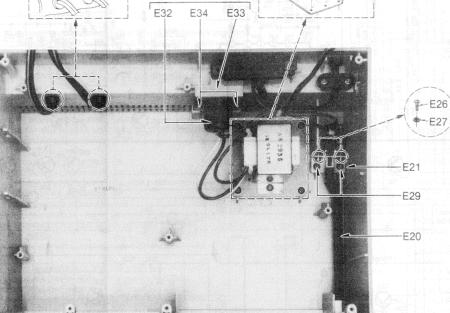
VR3 VR4

G35

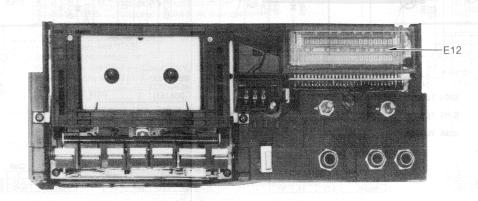




E29 E28 E29 E28



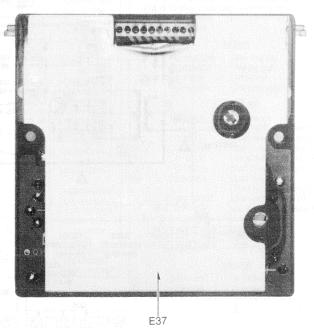
For all European areas except United Kingdom

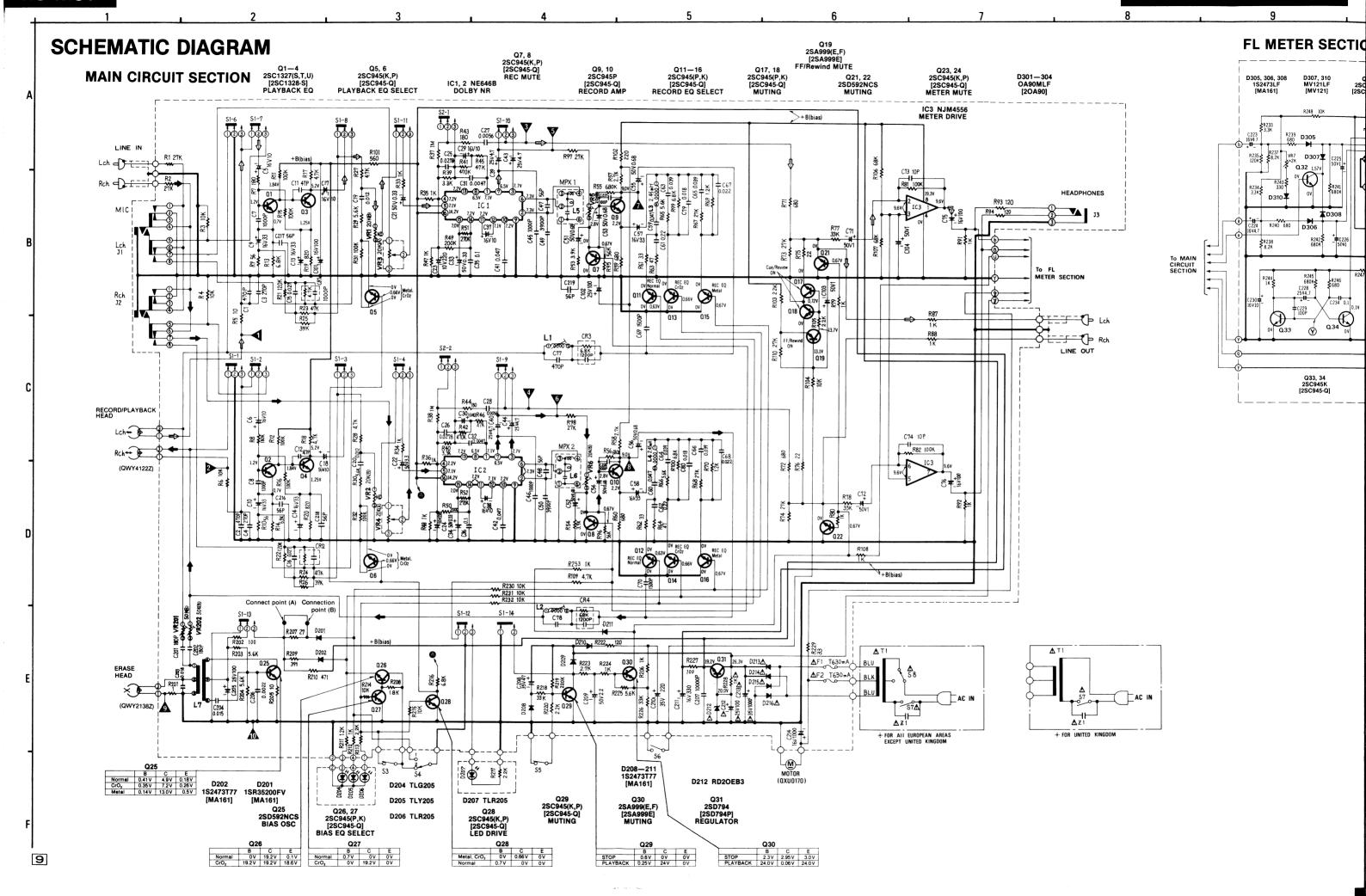


#### REPLACEMENT PARTS LIST

Important safety notice
Components identified by \( \triangle \) mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
	ELECTR	CAL PARTS
E1	OWY4122Z	Record/Playback Head
E2	OWY2138Z	Erase Head
E3	QMLM0041	Recording Lever
E4	OBSM0007	Recording Wire
E5	QJP1921TN	3 Pin Post
E6	OJS1921TN	3 Pin Socket
E7	QJ519211N QJT1054	Contact
E8	OTHM0011	Heat Sink
E9		Shield Plate-A
E10	QTSM0044 OTSM0045	Shield Plate-B
E10	Q15M0045	Suleid Liste-R
	0.170050	
E11	QJT0053	Check Pin
E12	QSiFL001F	FL Meter
E13	XNS8	Nut (for Input VR)
E14	QNQ1070	Jack Nut
E16	QFC2135	Pin Cord
E17	QBJ1425	Cord Bushing
E18	QTD1295	"
E19 🗇 🛆		AC Power Cord
		ept United Kingdom.
	QFC1205M	<i>n</i>
∗For Uni	ted Kingdom.	
E20	QKJM0046	Switch Button Rod
		(for Power Button)
E21	QMAM0123	Switch Angle (for S7)
	Friedrich .	
E22	QMFM0016	Transformer Holding Plate
E23	OTD1164	Cord Clamper
E24	OTD1001	Lug Terminal
E25	XTN3+8B	Tapping Screw ⊕3×8
E26	XSN3+6S	Screw ⊕3×6
E27	XWA3B	Washer 3¢
E28	XWG3	Washer 34
E29	XTN3+10B	Tapping Screw ⊕3×10
E30	XTN3+16B	Screw #3×16
E31	0JT4017	4 Pin Terminal
LJÍ	Q314017	The rail of the terminal
E32 🔯	QTWM0026	Switch Cover
		ept United Kingdom.
	OMAM0139	
		ept United Kingdom.
	XTB3+8BFN	Screw ⊕3×8 (for S8)
		ept United Kingdom.
	QTF1054	Fuse Holder
E36	QTWM0032	Terminal Cover
E37	QTSM0055	Shield Plate
E38	XTB3+12BFN	Screw ⊕3×12
E39	QZE0003	Porcelain Tube





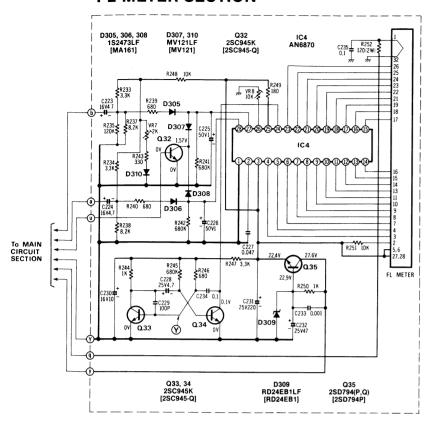
RS-M07

RS-M07

**IS-M07** RS-M07

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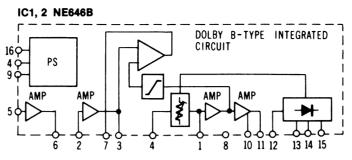
#### **FL METER SECTION**



#### SPECIFICATIONS \* Input level controls ······ MAX

Playback S/N ratio  * Test tape···QZZCFM	More than 45 dB (without NAB filter)
Overall distortion  * Test tape QZZCRA for Normal QZZCRX for CrO2 QZZCRZ for Metal	Less than 3% (Normal) Less than 3.5% (CrO <sub>2</sub> , Metal)
Overall S/N radio  * Test tape···QZZCRX	More than 46dB (without NAB filter)

#### **EQUIVALENT CIRCUIT**



### IC4 AN6870 Ch 1 28 INPUT GATE Ch 2 (2) IMPUT 8 17 HOLD GATE OUT 22 OUT 8 (+666) 3 C HOLD GATE OUT 21 OUT C (+4.68) D L HOLD GATE OUT 20 OUT 0 (+3e6) HOLD GATE OUT (5) (-248) OUT G1 GRID OUT on is 3 HOLD GATE DUT 1 (-348) MOLD GATE OUT (-10 de) 0UT 0 (-15#8) GATE OUT 6 OUT R

#### NOTES:

- S1-1—S1-14......Record/Playback select switch (shown in playback position).
- S2-1-S2-2 ......Dolby NR IN/OUT select switch (shown in out position).
- .. Auto tape select switch (shown in Normal position).
- S4. .Auto tape select switch
- (1... Metal position, 2... Normal position, CrO2 position) • S5 .Muting switch.
- .FF/Rewind muting switch. • S6.
- ..Power ON/OFF switch. • S7..
- .AC power voltage select switch • S8.
- \* For all European areas except United Kingdom.
- VR1, 2 .Playback gain adjustment VR. • VR3, 4
- Input level controls. • VR5.6 ..Overall gain adjustment VR.
- ..FL meter adjustment VR (for -20dB indication). VR7
- VR8 .FL meter adjustment VR (for 0dB indication).
- VR201, 202 ...... Bias current adjustment VR.
- L1, 2 ..... ...Bias leakage adjustment coil.
- . Connection points (A) and (B)......For erase current adjustment.
- Resistance are in ohms (Q), 1/4 watt unless specified otherwise. 1 K = 1.000Q, M = 1.000 KQ.
- Capacity are micro farads (µF) unless specified otherwise P = Pico-farads.
- The mark (▼) shows test point. e.g. ∀ = Test point 1.
- ( ) this arrow indicates the flow of the playback signal.
- ( ) this arrow indicates the flow of the recording signal.
- All voltage values shown in circuitry are under no signal condition. Unless otherwise specified, voltage measurement conditions are that tape travel is at STOP, tape mode at NORMAL, and Dolby NR switch at OFF.

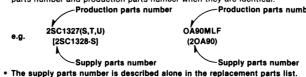
Normal ... ....Voltage at normal tape mode Cue/review OFF......Voltage at modes other than cue/review

Stop ..Voltage at stop mode Playback...

..Voltage at playback mode For measurent, use VTVM.

· Important safety notice

- Components identified by ∆ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Described in the schematic diagram are two types of number; the supply parts number and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.



NOTES: RESISTORS CAPACITORS ERD ··· Carbon
ERG ··· Metal-oxide
ERS ··· Metal-oxide ECBA ····· Ceramic ECG□ ···· Ceramic ECK□ ···· Ceramic ECC□ ···· Ceramic Polypropylene
 Electrolytic
 Non polar electrolytic ECE .... ERO ··· Metal-film ERX ··· Metal-film ECQS---·· Polystyrene ·· Tantalum ERQ ··· Fuse type metallic ERC ··· Solid ERF ··· Cement · Polvester film ocs Tantalum ECQE.

#### REPLACEMENT PARTS LIST

Important safety notice

Components identified by ∆ mark have special characteristics important for safety

Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.
RES	SISTORS	R213	ERD25FJ222	C61, 62	ECQV05224JZ	TRA	NSISTORS
	ī	R214, 215	ERD25FJ103	C63, 64, 65,		Q1, 2, 3, 4	2SC1328-S
1, 2	ERD25TJ273	R216 R217	ERD25FJ682 ERD25FJ222		ECQM1H393KZ	Q5, 6, 7, 8, 9	, 10, 11, 12, 13, 14,
3, 4	ERD25FJ103	N21/	ERUZOFJZZZ	0.7.00	500M111000K7	15, 16, 17,	
5, 6	ERD25FJ100	D210	CODOCTIONS	C67, 68	ECQM1H223KZ		2SC945-Q
7, 8	ERD25FJ181	R218	ERD25TJ333	C69, 70	ECKD1H152KB	Q19	2SA999E
9, 10	ERD25FJ560	R219	ERD25TJ224	C71, 72	ECEA50Z1	Q21, 22	2SD592NCS
11, 12	ERD25TJ104	R220	ERD25FJ222	C73, 74	ECCD1H100J	Q25	2SD592NCS
13, 14	ERD25FJ682	R222	ERQ14AJ121P	C75, 76	ECEA1ES101		
15, 16	ERD25TJ104	R223	ERD25FJ272	C77, 78	ECQP1471JZ	Q26, 27, 28,	
17, 18	ERD25FJ472	R224	ERD25FJ102	C79, 80	ECQM1H183KZ		2SC945-Q
19, 20	ERD25FJ821	R225	ERD25FJ562	C101, 102	ECEA1ES101	Q30	2SA999E
	LDE0:3021	R226	ERD25TJ333	C103, 104	ECEA50Z1	Q31	2SD794P
21, 22	ERD25TJ124	R227	ERG1ANJ101	C201, 202	ECKD1H181KB	Q32, 33, 34	2SC945-Q
23, 24	ERD25FJ472	1	ERD25FJ102	0201,202	LONDINIOND	Q35	2SD794P
	1	"	LINDEGISTOL	0202	FCOFC222K7	l _	10000
25, 26	ERD25TJ393	D220 221 2	122	C203	ECQF6332KZ	"	IODES
27, 28	ERD25FJ472	R230, 231, 2		C204	ECQM1H153KZ	D201, 202	MA161
29, 30	ERD25FJ562	l	ERD25FJ103	C205	ECEA1ES101	D204	TLG205
31, 32	ERD25TJ104	R233, 234	ERD25FJ332	C206	ECQM1H222JZ	D205	TLY205
33, 34, 35,	36	R235	ERD25FJ124	C207	ECKD1H103KF		
	ERD25FJ102	R237, 238	ERD25FJ822	C208	ECEA1JS220	D206, 207	TLR205
37, 38	ERD25TJ105	R239, 240	ERD25FJ681	C209	ECEA50Z2R2	D208, 209, 2	Lance Control
39, 40	ERD25FJ332	R241, 242	ERD25FJ684	C210	ECEA1VS221	1	MA161
41, 42	ERD25TJ474	R243	ERD25FJ331	C211	ECEA1CS331	1	RD20EB3
,	2.102013474	R244	ERD25FJ102			D213, 214, 2	215, 216
42 44	EDDOELIIO	R245, 246	ERD25FJ684	C212 A	FOEWIESINI	▲	SM112
43, 44	ERD25FJ181	11275, 240	L. (DEJI JUO4		F0F4	D305	MA161
45, 46	ERD25TJ473	D247	EDDOEE1333	C213 A		D307	MV121
47, 48	ERD25FJ102	R247	ERD25FJ332		ECEA1CS102	D308	MA161
49, 50	ER025CKG2003	R248	ERD25FJ103	C216, 217, 2	218, 219	12000	
51, 52	ERD25TJ274	R249	ERG1ANJ181		ECCD1H560J	D200	DD24ED1
53, 54	ERD25FJ392	R250	ERD25FJ102	C221, 222	ECCD1H101K	D309	RD24EB1
55, 56	ERD25TJ684	R251	ERD25FJ103	C223, 224	ECEA25Z4R7	D310	MV121
57, 58	ERD25FJ272	R252	ERG2ANJ121	C225, 226	ECEA50Z1	l	
59, 60	ERD25FJ681	R253	ERD25FJ102	C227	ECQM1H473KZ	COMBIN	
	l .			C228	l	I	PARTS
61, 62	ERD25FJ330	VARIABI	E		ECEA25Z4R7	CR1, 2	EXRP102K472
			RESISTORS	C229	ECCD1H101K	CR3, 4	EXRP122K682
63, 64	ERD25FJ470	VD1 0	EVANA 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	C230	ECEA1HS100	1	
65, 66	ERD25FJ562	VR1, 2	EVNM4AA00B24			INTEGRA	ATED
67, 68	ERD25FJ272	VR3, 4	QVHCCAF20A24	C231	ECEA1ES221		CIRCUITS
69, 70	ERD25FJ122	VR5, 6	EVNM4AA00B24	C232	ECEA1ES470	IC1, 2	NE646B
71, 72	ERD25FJ681	VR7	EVTS3MA00B23	C233	ECKD1H102KB	IC1, 2	
73, 74	ERD25TJ273	VR8	EVTS3MA00B14	C234, 235	ECQV05104JZ		NJM4556
75, 76	ERD25FJ220	VR201, 202	EVNM4AA00B54			IC4	AN6870
77, 78	ER025CKG2702			l ——	1		
79, 80	ERD25FJ102	CAP	ACITORS	Ref. No.	Part No.	Part	Name & Description
31, 82	ER025CKG1003	C1, 2	ECKD1H471KB	l ——			
31, 02	LINOESONGIOUS	C3, 4	ECKD1H271KB	11	704	NOTODA	-
7 00	EDD3EE1103	C5, 6	ECEA16M10R	11	IRA	NSFORME	<u>:H</u>
87, 88	ERD25FJ102	C7, 8	ECKD1H102KB	T1 D3	▲ QLPD55EKE	Power Tra	nsformer
91, 92	ERD25FJ102				Il European areas e		
93, 94	ERD25FJ151	C9, 10	ECEA1CS330		▲ QLPD56EKE	, , , , , , , , , , , , , , , , , , ,	
95, 96	ERD25TJ563	C11, 12	ECCD1H470J		Inited Kingdom.		
97, 98	ERD25FJ272	C13, 14	ECEA1CS330	******	Anteu Kinguom.		
99, 100	ERD25FJ682	C15, 16	ECQV05273JZ			COILS	
101	ERD25FJ561	C17, 18	ECEA1HS100	l I	01 041 000		• "
102	ERG1ANJ221	C19, 20	ECQM1H123KZ	L1, 2	QLQX1032W	Bias Trap	Coli
103	ERD25FJ222			L3, 4	QLQX2421Y	Peaking C	
104	ERD25FJ103	C21, 22	ECEA50MR33R	L5, 6	SLM1Z19	MPX Filte	r
	2.102513103	C23, 24	ECEA1AS221	L7	QLB0198K	Bias Oscil	lation Coil
105	EDDSEETSS	C25, 26	ECQV05273JZ		-		
105	ERD25FJ222	C23, 26 C27, 28	ECQV0527532 ECQM1H562JZ		<u>s\</u>	WITCHES	
106, 107	ERD25TJ683		•	S1	QSSE203	Slide Swit	ch
108	ERD25FJ102	C29, 30	ECEA1HS100	l I	1		Playback Selector)
109	ERD25FJ472	C31, 32	ECQM1H472JZ	S2	OSW2222		
110	ERD25TJ273	C33, 34	ECEA50ZR33		QSW2232		ch (Dolby IN/OUT)
201	ERD25FJ1R0	C35, 36	ECQV05104JZ	S3	QSB0253M		th (Auto Tape Select
202	ERG1ANJ101	C37, 38	ECEA1HS100	S4	AH32229		tch (Auto Tape Sele
203, 204	ERD25FJ562	C39, 40	ECEA25Z4R7	S5	QSB0251i		th (Rec-Mute ON/O
205	ERD25FJ100			S6	QSB0251i	Leaf Switch	:h
		C41, 42	ECQM1H473KZ	l I	1		rard/Rewind Muting
206	ERD25FJ102	C41, 42 C43, 44	ECEA25Z4R7	S7	△ QSW1117AS		ch (Power ON/OFF)
					△ QSR1409H	1	Voltage Select Swit
207	ERD25FJ270	C45, 46	ECKD1H102KB	_			
208	ERD25FJ182	C47, 48	ECCD1H560J	# rora	Il European areas ex	cept united Ki	ngdom.
209	ERD25FJ391	C49, 50	ECQP1392JZ			FUSES	
.05	ERD25FJ471	C51, 52, 53,	54, 55, 56	<b> </b>	1		
		l i	ECEA50ZR68	F1, 2	∆ XBAQ0008	Fuse (T63	0mA)
210	FRD25F1122				1		
10 11	ERD25FJ122	C57. 58		1			
10	ERD25FJ122 ERD50FJ102	C57, 58 C59, 60	ECEA1CS330			JACKS	
10 11		C57, 58 C59, 60		J1, 2	QJA0253	JACKS Microphon	e Jack

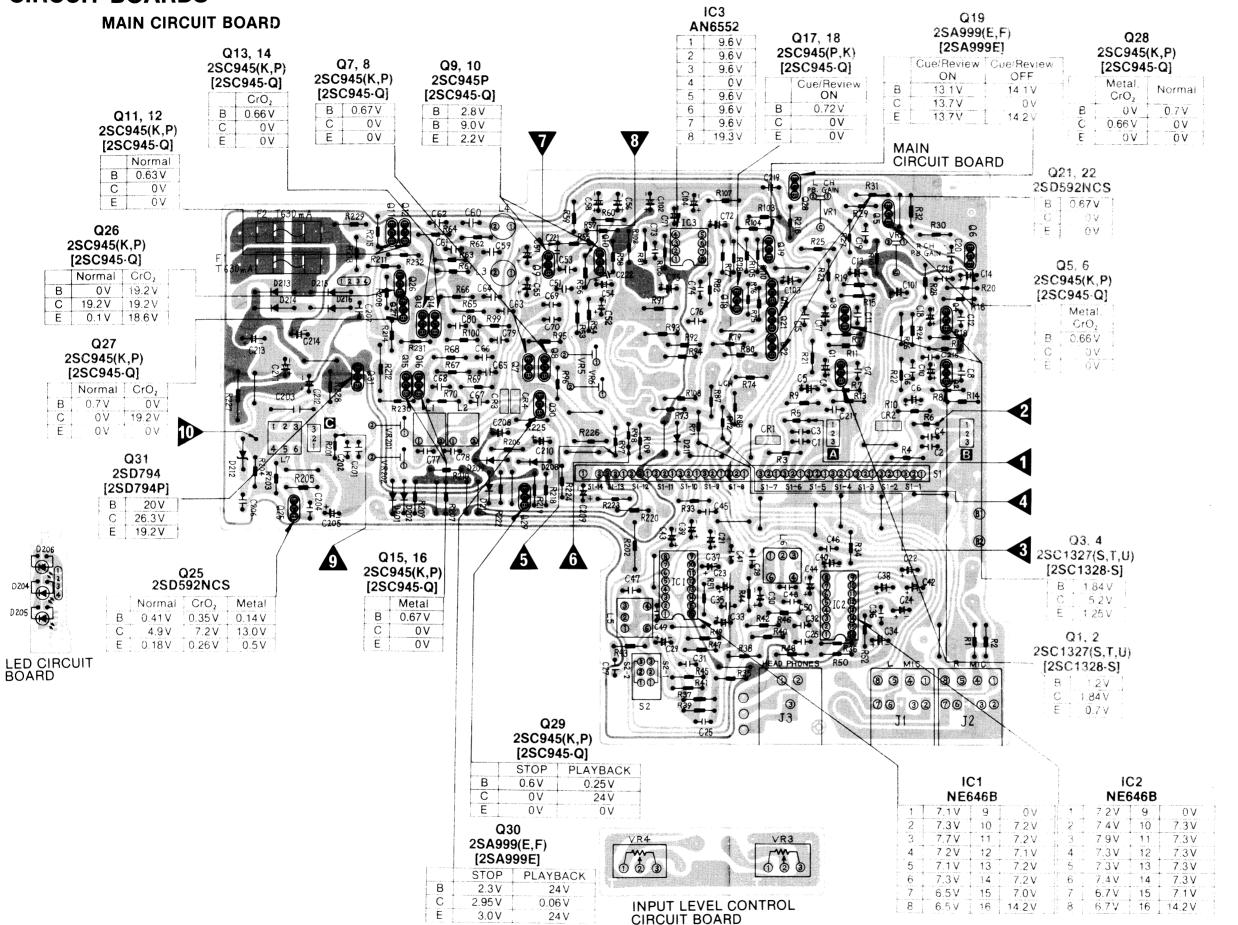
RS-MO7 RS-MO7

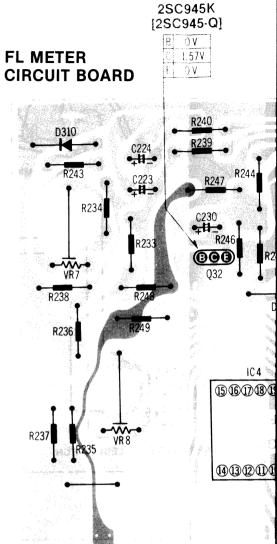
13 12 11 10 9 8 7 6 5

CIRCUIT BOARDS

MAIN CIRCUIT BOARD

1C3 Q19 2SC945K [2SC945K] [2SC945-Q] [2SC945-Q]





## NOTES: • The circuit show

- The circuit show the back side of
- Values indicated
- electrical parts.
- All voltage value
- Unless otherwise tape mode at NO Normal ......

Cue/review OFF

Playback.....

For measurent,

 Described in the supply parts nun

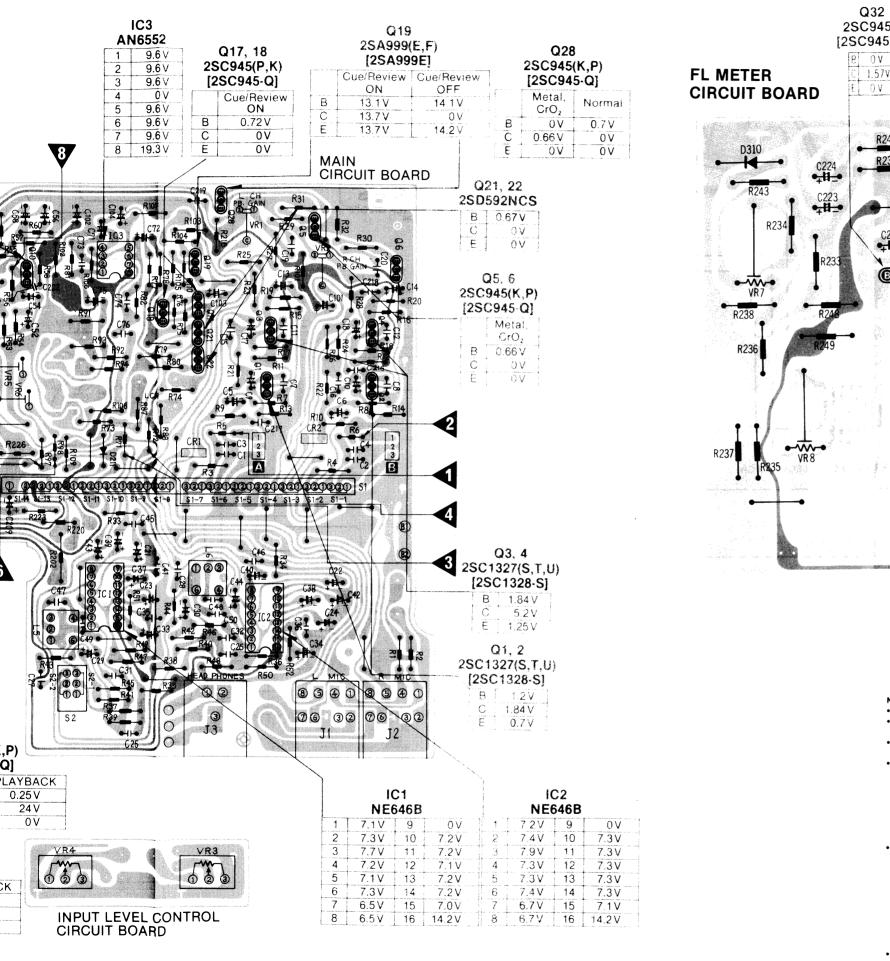
supply parts num One type of num parts number wh

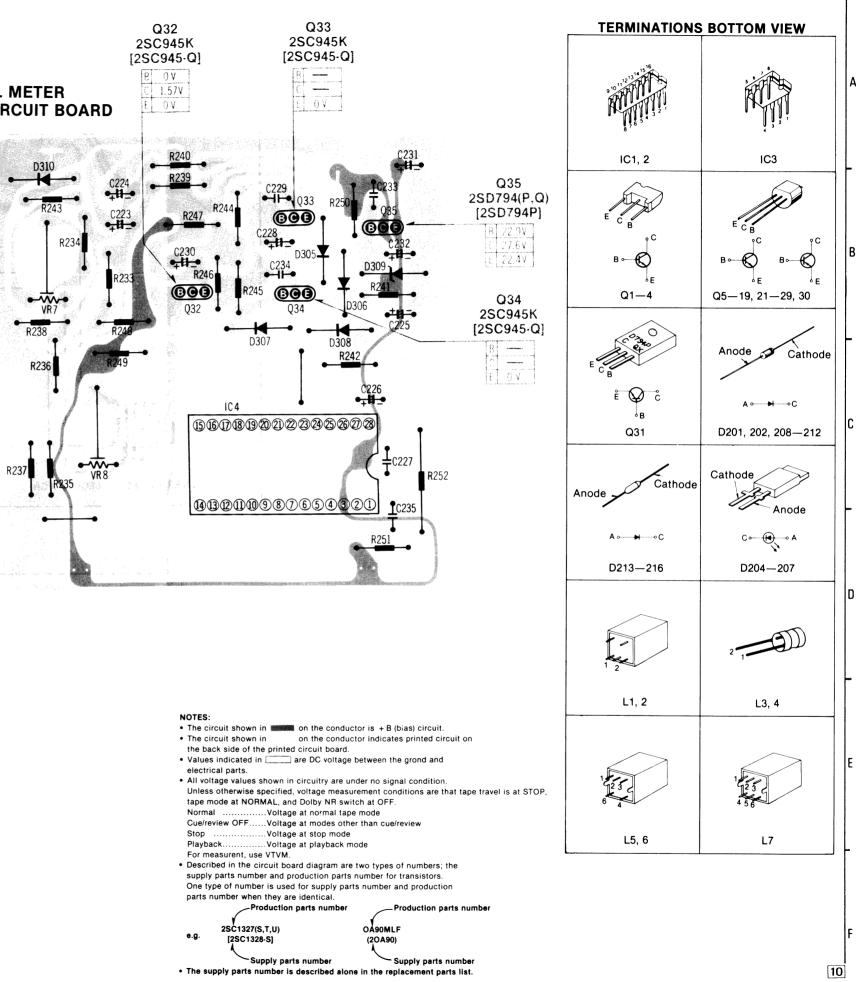
2SC132

The supply parts

RS-M07 RS-M07

RS-M07

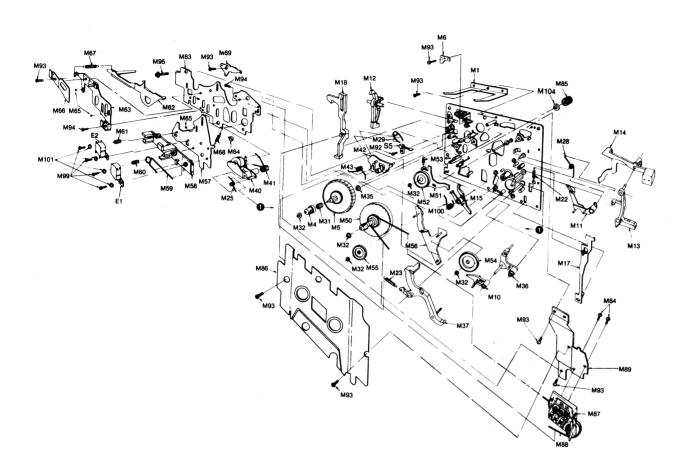


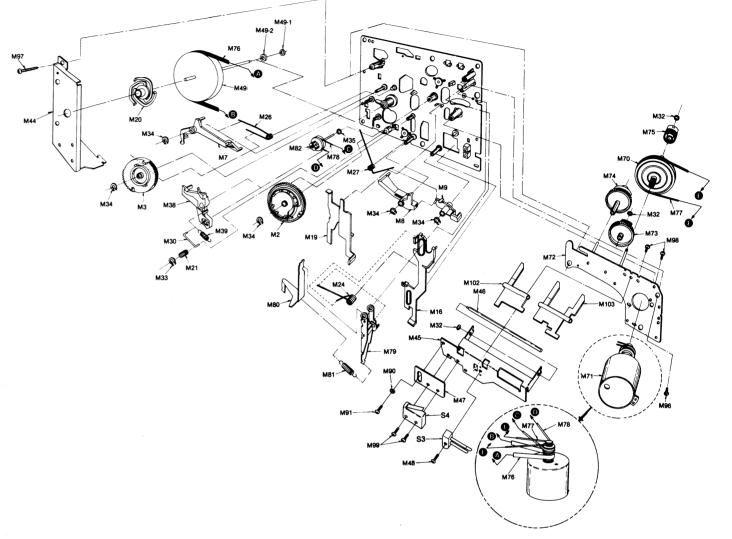


NIL ORG PNK RED SLD VLT WHT

Violet White Yellow

## **MECHANISM PARTS LOCATION**





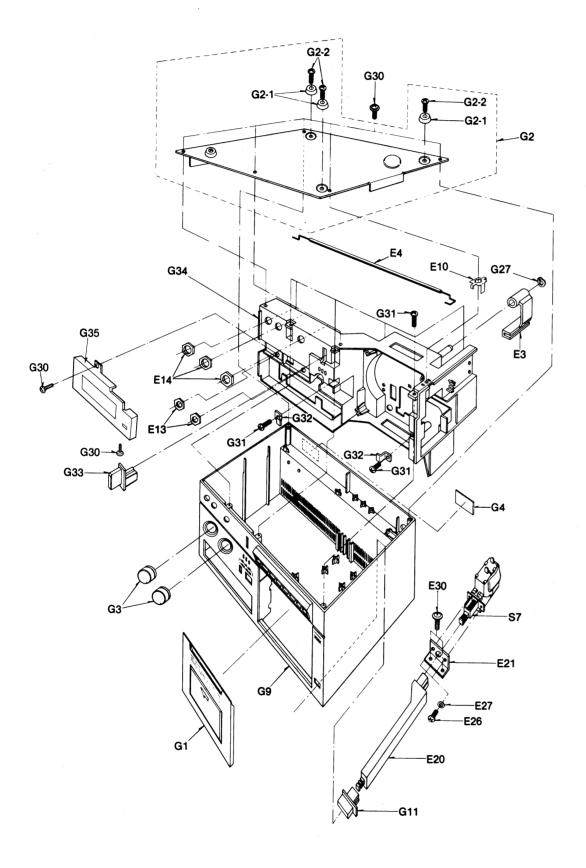
#### REPLACEMENT PARTS LIST

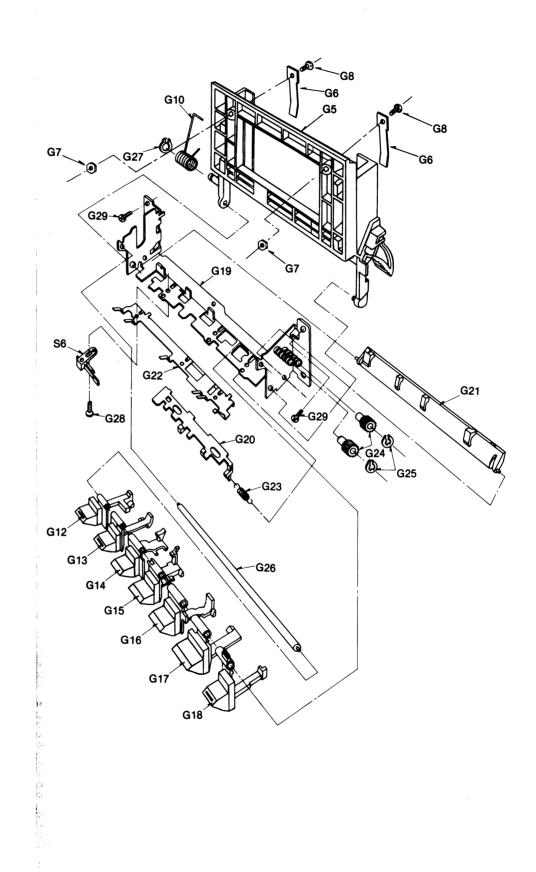
Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
	.=	**************************************	M28	QBN1746	Auto-Stop Lever Spring	M54	QXi0113	Fast Forward Idler Assembly	M80	QML3580	Record/Playback Selection Leve
	MECHA	NICAL PARTS	M29	QBN1747	Connection Spring	M55	QXi0112	Rewind Idler Assembly	M81	QBT1895	Record/Playback Selection Leve
M1	QBP1874	Cassette Pressure Spring	M30	QBS1128	Lock Pin	M56	QXL1383	Fast Forward Arm Assembly	1		Spring
<b>M</b> 2	QDG1201	Main Gear	1			M57	QMK1840	Head Base Plate	M82	QXP0607	Fast Forward Connection Pulley
M3	QDG1202	Sub Gear	M31	QBC1372	Reel Table Spring	M58	QMZ1241	Head Spacer	1		Assembly
<b>M</b> 4	QMB1336	Supply Reel Table Hub	M32	QBW2008	Poly Washer 2¢				M83	QMK1838	Upper Base Plate
M5	QDR1139	Supply Reel Table	M33	XUB4FT	Stop Ring 4¢	M59	QBN1740	Head Pressure Spring	M84	XSN3+5S	Screw ⊕3×5
M6	QMF2118	Fast Forward Arm Bracket	M34	XUB3FT	Stop Ring 3¢	M60	QBC1278	Head Spring	M85	QDP1828	Fast Forward Pulley
M7	OML3581	Sub Control Lever	M35	QBW2012	Poly Washer	i	'	(for Record/Playback Head)	M86	QXH0357	Chassis Cover Assembly
M8	OML3583	Main Control Lever	M36	QXL1354	Sub Lever Assembly	M61	QBCA0008	Head Spring (for Erase Head)	M87	QXC0067	Tape Counter
M9	OML3584	Record Operation Lever	M37	QXL1355	Main Lever Assembly	M62	QML3591	Brake Arm	M88	QDB0207	Counter Belt
M10	OML3586	Head Base Plate Lift Lever	M38	QML3582	Pause Lock Lever	M63	OMZ1240	Sub Head Base Plate	i		
	•		M39	QBT1896	Lever Release Spring	M64	OMN2550	Roller	M89	QMAM0130	Counter Angle
W11	OML3594	Auto-Stop Release Arm	M40	QXL1381	Pressure Roller Assembly	M65	ODK1017	Steel Ball 2¢	M90	XWC26B	Washer 2.6 ¢
M12	OML3603	Erase Safety Lever	1			M66	OBP1873	Head Base Plate Pressure Spring	M91	XSN26+6	Screw ⊕2.6×6
M13	OML3604	Auto-Stop Driving Lever	M41	QBN1743	Pressure Roller Spring	M67	OBT1597	Brake Arm Spring	M92	XTN2+6B	Tapping Screw ⊕2×6
W14	OML3605	Auto-Stop Detection Lever	M42	QML3588	Fast Forward Lever	M68	OBT1892	Head Release Spring	M93	XTN26+6B	Tapping Screw ⊕2.6×6
W15	OML3592	Change Lever	M43	QBN1748	Fast Forward Spring	1	•		M94	XTN26+10B	Tapping Screw ⊕2.6×10
W16	OMR1820	Record Rod	M44	QMA4063	Flywheel Retainer	M69	OMA3858	Head Adjustment Plate	M95	XTN26+12B	Tapping Screw ⊕2.6×12
M17	OMR1821	Auto-Stop Connection Rod	M45	QMA3920	Detection Lever Angle	M70	0XG1047	Takeup Gear Assembly	M96	XTN3+10B	Tapping Screw ⊕3×10
W18	OMR1822	Eiect Rod	M46	QMS2546	Detection Lever Shaft	M71	0XU0170	Motor Assembly	M97	XTN3+24B	Tapping Screw ⊕3×24
W19	OMR1824	Control Rod	M47	QMF1682	Switch Retaining Plate	M72	0XK2286	Sub Chassis Assembly	M98	XSN26+3	Screw ⊕2.6×3
W20	OMZ1239	Flywheel Thrust Retainer	M48	XSN2+6	Screw ⊕2×6	M73	QDG1199	Auto-Stop Gear	1		
•	•	1	M49	QXF0164	Flywheel Assembly	M74	QDG1200	Cam Gear	M99	XSN2+10	Screw ⊕2×10
M21	OBC1357	Lock Pin Pressure Spring	M49-1	QBW2049	Poly Washer	M75	ODP1823	Connection Pulley	M100	QBN1741	Change Lever Spring
122	OBT1682	Auto-Stop Connection Rod Spring		1		M76	ODB0281	Capstan Belt	M101	XWG2	Washer 2∳
M23	OBT1894	Main Lever Spring	M49-2	QBW2026	Washer	M77	QDB0273	Fast Forward Belt	M102	QML3644	Tape Detection Lever-A
M24	OBN1739	Selection Lever Spring	M50	QXD1143	Takeup Reel Table Assembly	M78	QDB0274	Takeup Belt	1	-	(for Metal Tape)
A25	OBN1742	Pressure Roller Release Spring	M51	QXL1382	Idler Lever Assembly			1	M103	QML3645	Tape Detection Lever-B
M26	OBN1744	Sub Gear Spring	M52	QXi0111	Takeup Idler Assembly	M79	QXL1360	Record/Playback Selection Arm	1		(for CrO <sub>2</sub> Tape)
M27	ORN1802	Main Gear Spring	M53	OBT1893	Takeup Idler Spring	1	1.	Assembly	M104	OBW2085	Poly Washer

When servicing this mechanism unit, refer to the disassembly notes and assembly instructions described in the service manuals of RS-M51, RS-M13, RS-M14 and RS-M04 (RS-M24 mechanism series).

#### **SPECIFICATIONS**

Pressure of pressure roller	350±50g
Takeup tension  * Use cassette torque meter  QZZSRKCT	45 <sup>+ 15</sup> <sub>- 10</sub> g-cm
Wow and flutter; (JIS)  * Use test tape  QZZCWAT	Less than 0.06% (WRMS)





#### REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
	CABIN	ET PARTS
G1	QYFM0049	Cassette Lid Assembly
G2	QYCM0028	Bottom Cover
G2-1	QKA1083	Rubber Foot
G2-2	QHQ1299	Step Screw
G3	QYT0615	Input Level Control Knob Assembly
	QGSM0143	Main Name Plate
		pt United Kingdom.
	QGSM0144	"
	ted Kingdom.	1
G5	QKFM6007K	Cassette Holder
G6	QBP1899	Holder Spring
G7	XNG2E	Nut 2¢
G8	XSN2+5	Screw ⊕2×5
G9 🔯	QYMM0079	Main Case Assembly
		pt United Kingdom.
	QYMM0078	, ·
<b>∗For Unit</b>	ed Kingdom.	
G10	QBN7008	Cassette Holder Spring
G11	QGOM0039	Power Button
G12	QXL1441	Eject Button Assembly
G13	QXL1442	Record Button Assembly
G14	QXL1443	Rewind/Review Button Assembly
G15	QXL1444	Fast Forward/Cue Button Assembly
G16	QXL1445	Playback Button Assembly
G17	QXL1446	Stop Button Assembly
G18	QXL1447	Pause Button Assembly
G19	QXA1044	Operation Button Angle Assembly
G20	QMR1823	Obstruction Rod
G21	QML3593	Lock Arm
G22	QBP1875	Obstruction Lever Spring
G23	QBT1597	Obstruction Red Spring
G24	QDG1102	Holder Gear
G25	XUC4FT	Stop Ring 4¢
G26	QMN2554	Operation Lever Shaft
G27	XUB5FT	Stop Ring 5¢
G28	XTN2+6B	Tapping Screw ⊕2×6
G29	XTN26+6B	Tapping Screw ⊕2.6×6
G30	XTB3+10BFN	Tapping Screw ⊕3×10
G31	XTN3+12B	Tapping Screw ⊕3×12
G32	QMAM0129	Stopper
G33	QGOM0038	Switch Button (for Dolby NR)
G34	QKJM0065	Mechanism Angle
G35	QGKM0151	Meter Cover
		ESSORY
		Instruction Book
		pt United Kingdom.
	QQT3041	"
<b>≭For Unit</b>	ed Kingdom.	
	PAC	KINGS
P1	QPNM0161	Inside Carton
P2	QPAM0040	Cushion-R
P2		Oughian I
P3	QPAM0041	Cushion-L
P3 P4 P5	QPAM0041 QPG1983	Pad Pad

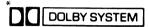


# Service Manual

Metal Tape Compatible Stereo Cassette Deck with Soft-Touch Controls and Auto-Tape Selector

RS-M07
(Black Face)

Cassette Deck





This is the Service Manual for the following areas.

D ..... For all European areas except United Kingdom.

#### **RS-M24 MECHANISM SERIES**

• Please use this manual together with the service manual for model No. RS-M07 (Silver, Face: order No. ARD-81040044C2-13).

#### PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual RS-M07 (Silver Type) to conform to the changes shown herein. If new part numbers are shown, be sure to use them when ordering parts.

Ref. No.	Parts Name	Part Numbers	
		Silver Type (Original)	Black Type
M86	Chassis Cover Assembly	QXH0357	QXH0357K
G1	Cassette Lid Assembly	QYFM0049	QYFM0049K
G9	Main Case Assembly	QYMM0079	QYMM0083
G35	Meter Cover	QGKM0151	QGKM0151K
A1	Instruction Book	QQT3040	QQT3101

\* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

# **Technics**

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